Salton Sea Air Quality Technical Work Group Meeting – December 5 and 6, 2007
Keeler, CA
Sign In Sheet

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Agenda

Salton Sea Air Quality Technical Working Group Meeting

12:30 PM, December 5, 2007, to
2:30 PM, December 6, 2007

Los Angeles Department of Water and Power Operations and Maintenance Facility,
Sulfate Road (State Highway 136), Keeler, California, 93530

December 5, 2007 (Wednesday)

Lunch Graciously Furnished by Great Basin Unified Air Pollution Control District

12:30- 1:30 Welcome and Introduction – Purpose of the Meeting and Desired Outcomes
Chuck Keene/DWR, Ted Schade/GBUAPCD, Richard Harasick/LADWP

1:30 – 4:30 Group Tour of Owens Lake (The Owens Valley PM10 Planning Area)

Adjourn to Lone Pine

December 6, 2007 (Thursday)

8:00 – 10:30 Salton Sea Air Quality Monitoring and Focused Studies

Baseline Salton Sea Air Quality Monitoring Network – Network Design
Earl Withycombe and Sylvia Oey /ARB; ICAPCD; SCAQMD; Torres Martinez

Baseline Air Quality Monitoring Network; Elements and Priorities for the 5-Year Plan
Pamela Vanderbilt, Don Caniparoli, and Keith McGregor/CH2M HILL

10:30-11:00 Proposals for Additional Research by DRI and USGS at the Salton Sea, Data Needs and Recommendations James King/DRI, Pat Chavez, Group Input

11:00-12:00 Agency Comments, Proposed Studies, Additional Needs and Recommendations
ICAPCD, SCAQMD, Torres Martinez, ARB, EPA

12:00-1:00 LUNCH Lunch Graciously Furnished by GBUAPCD

1:00-2:15 Schedule Update and Discussion of Potential Phasing of Studies and Air Quality Research at Salton Sea; Comments on the Draft Minutes for the October 11 SSAQTWG Meeting Chuck Keene/DWR

2:15-2:30 Path Forward, Next Steps Chuck Keene/DWR

2:30 Adjourn

December 5, 2007

Chuck Keene welcomed the group and each attendee provided their name and affiliation.

Ted Schade, Air Pollution Control Officer for the Great Basin Unified Air Pollution Control District (GBUAPCD), presented a power point presentation titled, *Owens Lake Dust Pollution – On the Verge of Solving the Problem*. The presentation described the air quality monitoring program and the dust control program that has been underway at Owens Lake for the past 8 years. He described the physical layout of the Owens Valley, the history of the lake, development of the aqueduct to Los Angeles, and current conditions. Following the presentation, the group went out to vehicles for a tour of the dust control and air monitoring facilities on the lake bed.

The lake is approximately 110 square miles in size, and water surface elevation is historically shallow. The remnant brine pool is approximately 40 square miles in size, and areas near the edge of the brine pool are not emissive.

Ted explained that current annual particulate matter (PM10) emissions, after implementation of the existing dust control measures, were estimated at 76,000 tons per year (ton/yr), with peak days at 7,000 ton/day. Monitoring data indicated that maximum 24-hour average ambient PM10 concentrations before controls were >10,000 $\mu g/m^3$. Peak levels in 2005, after initial phases of controls, were 4,000 $\mu g/m^3$ at Shell Cut; and 1,500 $\mu g/m^3$ at Keeler. The National Ambient Air Quality Standard (NAAQS) (24-hour average) for PM10 is 150 $\mu g/m^3$, and the comparable California standard is 50 $\mu g/m^3$.

The 1998 State Implementation Plan (SIP) for the Owens Valley PM10 Planning Area called for dust controls to be installed on 16.5 square miles of emissive areas. The 2003 SIP called for implementation of dust controls (Best Available Control Measures or BACM) on 29.8 square miles (19,072 acres) by 2007. The estimated cost for dust control studies, implementation, and maintenance (to date) is about $415 M.

The existing dust control program is comprised of approximately 26.5 square miles of shallow flooding and 3.0 square miles of managed vegetation. The proposed project would develop and operate 15.1 square miles of new dust control measures. The existing and proposed dust control measures will reduce emissions by approximately 73,000 ton/yr of PM10, according to the 2008 Owens Valley PM10 Planning Area Demonstration of Attainment SIP, Draft Subsequent Environmental Impact Report (GBUAPCD, September, 2007).

<u>BACM for Dry Lakes Listed in the 2003 SIP, and approved by EPA, and the Owens Lake experience:</u>

1. **Managed vegetation** – The goal of this dust control measure was 50% vegetative cover for every acre of emissive playa. At Owens Lake, salt grass was used. Salt grass requires approximately 1.3 acre-feet/acre/year of 1,100 TDS (total dissolved solids) groundwater. Drainage has been the biggest challenge, so there is a subsurface drainage collection and treatment system. John Dickey explained that results indicate managed vegetation is 99% effective with approximately 23% average cover in winter, and Los Angeles Department of

Water and Power (LADWP) will be asking for a reduction in the SIP requirements for percent vegetative cover. Due to water collection in some areas, they needed to re-plant approximately 400 acres of the 2400 acres total, where the salt grass didn't "take" due to poor drainage. Plants are doing well now.

2. **Shallow flooding** – For this dust control measure, 75% cover, meaning standing water or saturated soil over 75% of the playa surface area, provides 99% control. Shallow flooding requires about 4 acre-feet/acre/year. They are currently using a total of about 40,000 acre-feet per year of aqueduct water for shallow flooding. Requirements for shallow flooding tend to be seasonal, typically October through June. In the summertime, salts are less emissive, and flooding is not needed.

3. **Gravel Cover** - They have only used gravel cover for a 300 acre area along an access road. They achieved 100 percent cover by using 4 inches of gravel. It was very expensive to purchase, transport, and spread gravel. Unless it is protected, gravel can be flooded or covered with mud. At Owens Lake, they experienced efflorescent salt blooms, reducing the control effectiveness of the gravel cover. They did not experiment with less coverage, due to the lack of success of the more intensive cover.

Ted indicated that the least expensive method at Owens Lake is shallow flooding due to the availability of water from the LA Aqueduct. For them, the question had become, "How much money are you going to spend versus how much water are you going to spend?" In the long run, they felt that the most cost effective method, with the best use of water, may be to reclaim soils in bands, grow vegetation, use the drainage off the vegetation to do shallow flooding, reclaim another band, grow vegetation, and so forth.

A question was asked about toxicity to birds. The primary toxicity issues at Owens Lake are related to potential exposures to inorganic elements in lakebed sediments, dust, and groundwater, e.g., arsenic, cadmium, and nickel. The drainage from the managed vegetation is very salty, and there are no insects (or other food sources) in the salt ponds, so birds stay out.

Approximately 15 million cubic yards of soil have been used to build roads and berms. There are an estimated 30 pumping and water treatment systems, 7,500 bubblers, 3,500 miles of drip irrigation tubing, and 27 million plants in managed vegetation.

GBUAPCD monitors areas with dust control measures for control efficiency, and monitors elsewhere to identify areas that may need controls. The question that they focused on is "What's blowing and where?" Equipment used includes Cox Sand Catchers to monitor sand motion, and Sensits, where sand grains create charges that are measured by solar-powered data loggers.

Over 180 Sensit systems are in place, and more are being installed. They had been set up in a grid, but now are more focused on areas of concern. They use the results to correlate sand motion with meteorological and ambient air quality monitoring data.

In answer to a question, LADWP and GBUAPCD indicated that equipment vandalism has not really been a problem at Owens Lake.

Monitoring results are supplemented by visual observations by GBUAPCD staff from local mountain tops and mapping of dust plumes and their movements. They also operate time lapse video, or dust cameras at 7 sites. They also have GPS units on all terrain vehicles for visual observation of crusts and crust behavior.

The 2008 SIP Revision calls for controls on an additional 13.2 square miles by April 2010.

With GBUAPCD's provisional approval, LADWP will be testing a new dust control measure called moat and row on 3.5 square miles. Moat and row is based on crust and wind conditions. Two rows are proposed perpendicular to the prevailing wind direction, with sand fences on top, and possibly vegetation between the moats and rows. Two demonstration sites are estimated to cost $1.1 million.

They estimate they will ultimately use approximately 75,000 acre feet/year of water for 43 square miles of dust mitigation.

GBUAPCD Funding

LADWP is the responsible party for dust control at Owens Lake. They have funded GBUACPD with approximately $4 to $5 million/year for the last 8 to 9 years, for a total of about $30 M. This is a somewhat unique situation, where GBUAPCD assesses LADWP for money for research and control, and LADWP is not required to obtain a permit for air emissions caused by their water gathering activities (aqueduct).

Richard Harasick, LADWP, explained that they prefer the more positive view that they have solved the problem. The entire project will be implemented by 2010, with an ongoing process for future actions. PM10 levels have been dramatically reduced, and operation and maintenance of the dust controls are now the main focus of their efforts. Richard indicated that he is the outgoing Program Director (PD), and Bill Van Waggoner will be the new PD Wayne Bamossy is the onsite operations engineer.

Monitoring Station Costs

GBUAPCD staff estimated that PM10 monitoring stations like theirs at Owens Lake would have capital costs of approximately $80K with power, or approximately $130K with solar (they are testing a solar monitor at Mono Lake). They also noted that monitoring station maintenance is very expensive at sites this emissive.

December 6, 2007

Chuck Keene, Department of Water Resources (DWR), gave an overview and update of the Salton Sea Ecosystem Restoration Program. The Salton Sea Air Quality Technical Working Group (SSAQTWG) is one of 5 technical groups established by the DWR, the Department of Fish and Game (DFG) and the United States Geological Survey (USGS) to oversee ongoing efforts at the Salton Sea. Other working groups include:

1. Biological
2. Hydrologic
3. Socioeconomic
4. Engineering/Geological/Geography

In addition, DFG will over see a group focused on data management. Each group is developing monitoring plans that will provide baseline and ongoing scientific information to support the Salton Sea program.

The future direction for the Salton Sea program is initially dependent on passage of legislation, specifically SB 187 (Ducheny). Last year, the bill stalled in the State Assembly Appropriations Committee. It is a 2 year bill to be reintroduced in January 2008. SB 187 would provide:

1. Funding for restoration
2. Permanent governance structure (draft language should be available by the end of December)
3. Direction from the legislature as to the future project - approval of the PEIR and Secretary of Resource's recommendation of a preferred alternative

Funding to support work at the Salton Sea will also likely be included in future State water bonds.

Regardless of future direction, one of the first tasks needed to support the Salton Sea program will be to establish a baseline ambient air quality and meteorological monitoring network. Baseline air quality and meteorological monitoring data are needed for two purposes:

1. To establish better information on baseline conditions at the Salton Sea
2. To use in future evaluation of changes

Funding for the Salton Sea program will be subject to a year-to-year funding cycle. This fiscal year (FY), approximately $15M is available for Salton Sea studies, to be overseen by DFG and DWR. The DFG is proposing pilot projects and a demonstration-scale habitat study. The DWR is supporting technical working groups (including air quality, engineering/geology, and hydrology) and stakeholder meetings. There is currently no legislative commitment for funding past the current fiscal year, which will end on July 1, 2008. The need for funding for the Salton Sea program is complicated by the State's forecasted budget deficit. In order to keep the program moving ahead, the focused technical groups need to identify the priorities for study and the needs for equipment and information at the Salton Sea, so this information can be shared with the Department of Finance and the Legislature. The focus in the near term will be to show tangible progress on

"no regrets" projects, that is, projects that will be implemented regardless of the alternative selected, e.g. baseline monitoring programs.

Earl Withycombe, California Air Resources Board (ARB), presented a draft design for a Baseline Air Quality Monitoring Network at the Salton Sea. The purpose of the network would be to develop baseline information for protection of ambient air quality, to maintain the National Ambient Air Quality Standards (NAAQS), and to the extent possible, the California AAQS. Potential locations for both upwind and downwind monitors were identified, and the parameters, equipment, and methods proposed for measurement were discussed. The monitoring is proposed to evaluate air quality and meteorological conditions at locations as close to Salton Sea as possible. Earl's presentation was provided at the meeting and by separate email to members of the SSAQTWG.

The presentation on the Baseline Air Quality Monitoring Network focused on several parameters for ambient measurement:

1. Particulate Matter (PM2.5 and PM10)
Monitoring is needed to evaluate local contributions to PM2.5 and PM10 levels. It may be helpful to establish relative ratios of PM2.5 to PM10 for use in modeling. One question is whether to monitor PM2.5 at permanent stations, or just PM10. For now, ARB is proposing that one-half of the sites would use filter-based sampler technology to allow elemental analysis of the collected materials. If dust samples differ, it may be possible to assign responsibility for dust emissions to various sources, based on similarities in the chemical compositions of the source materials and the dust samples. The filter-based samplers would be rotated to other locations, perhaps on an annual basis, to obtain data from as many locations as possible. Co-located monitors, to be used for QA purposes were identified in the draft plan.

2. Ozone (O_3)
Ozone may be an impact of the project due to projected emissions of oxides of nitrogen (NOx) from fuel combustion in construction equipment. Coachella Valley and Imperial County are both designated as ozone non-attainment areas. ARB is proposing operation of one additional monitoring station within the Imperial County Air Pollution Control District (ICAPCD) to fill the gap between the existing networks operated by the South Coast Air Quality Management District (SCAQMD) and ICAPCD. The monitoring site would be in the south end of the Sea where construction of thousands of acres of Early Start Habitat and Saline Habitat Complex is proposed. Reyes suggested operation of a NOx monitor at this location as well.

3. Hydrogen Sulfide (H_2S)
ARB proposes operation of one H_2S monitor at the north end of the Salton Sea and one at the south. The location of the sampler may be changed on an annual basis, to provide more geographic coverage.

4. Heavy metals

Filter samples collected for particulate matter can undergo laboratory analysis to determine organic compound composition. Other sampling and analyses may also be considered, for example, deposition plates.

5. Surface Meteorological conditions
Ambient air quality monitoring stations would be equipped with 10-meter meteorological towers.

6. Upper Air Meteorology
To determine the height of the atmospheric mixing layer, or inversion layer, a radar wind profiler may be recommended. There was an existing profiler in El Centro, but it is reportedly under repair. Questions include whether this profiler needs to be moved closer to the south end of the Salton Sea, and whether another profiler is needed at the north end of the Salton Sea?

Earl discussed the work that Elliott Mullberg (ARB) and Pat Chavez (USGS) had done to interpret measured wind speeds and prevailing wind directions at the Salton Sea. Prior studies have proposed that a wind speed of 15 miles per hour (mph) (at 10 meters) is a representative threshold for entrainment of dust. This is roughly equivalent to 11 mph at 2 meters. The sites he proposes for monitoring stations are based on the wind speeds and prevailing wind directions identified in prior work at the Salton Sea. Ideally, electrical power is needed for operation of the stations. Long term accessibility of the site and security from vandalism and theft are other priorities.

Jonathan Chapman, Torres Martinez Indian Tribe (TM), informed the group that there is a meteorological station operated by TM at the old Naval Test Site on the southwest side of the Salton Sea. Earl provided a map with proposed locations for monitors, and indicated that the sites with asterisks could be relocated after some designated time period.

Brad Poiriez, ICAPCD, updated the group on the status of the profiler that had been located in El Centro. It is now in Calexico. There had been substantial noise complaints during its operation. Brad asked if birds or bird watchers might be disturbed by the noise.

Duane Ono, GBUAPCD, indicated that the model they use at Owens Lake is not that sensitive to upper air data. The surface meteorological conditions are the most important measurements for them.

Earl pointed out that at Salton Sea, high wind events are only one concern and agreed that under high wind conditions, mixing height is not important. Under stagnant conditions, a different kind of problem may be created, particularly during construction of this magnitude. Measurement of the mixing height closer to the Salton Sea would be the purpose for the upper air station.

Pat Chavez asked what the proposed intervals were for sampling. Earl explained that it might make sense to follow EPA protocols for time averaging of data during non-high wind periods, and to program the data loggers to record data on shorter intervals when a certain wind speed threshold is exceeded. There are concerns about the accuracy of measurements

made with the Tapered Element Oscillating Microbalance (TEOM) when averaging times are shortened. Pat also felt it was important to monitor under calm conditions, because non-windy conditions tell us what other sources exist, outside of those caused by wind events.

Other upwind sources of PM10 include:

1. Paved roads
2. Unpaved roads
3. Agriculture

It will be important to be able to disaggregate the impacts of project-related sources verses non-project related sources.

Phil Fine, SCAQMD, pointed out that due to the low relative price of data storage, it may make sense to record all the data at shorter intervals (e.g., 1 minute, or 5 minute TEOM measurements), and not to vary the protocol between windy versus non-windy conditions.

The group discussed requirements for quality assurance (QA) and quality control (QC). Earl proposed full compliance with Part 58 requirements. Co-located monitors, to be used for QA purposes were identified in the draft plan. Earl indicated these monitors could be rotated on an annual basis to provide QA for multiple sites over time. GBUAPCD asked who would do the audits, and Earl suggested ARB.

Don Caniparoli, CH2M HILL, asked about the existing monitoring network(s), and the need to augment monitoring capabilities at existing sites. Sylvia Oey, ARB, indicated that they are not initially intending to augment the existing sites, but this is something that can be considered. Phil Fine pointed out that some existing stations may not have all the capabilities that the proposed stations may have, and we may want to upgrade them.

South of the Salton Sea, the network is even more dense than is typical, to monitor the impacts of pollutant transport from Mexico. Sylvia Oey described a gap in the monitoring network to the west of the Salton Sea. This open area is largely unpopulated.

Ted Schade pointed out that dust plumes may start at the baseline area, and then loft and impact other areas. He asked if we need to worry about unpopulated areas.

Pat Chavez suggested that we might need additional monitors at a distance from the lake to track how other areas may be impacted. Dust may loft up and over shoreline monitors. He felt it might not work to use chemical composition information to identify exposed playa dust impacts verses impacts from other sources. The area's dust sources and dust compositions may be very similar. For example, it may be difficult to use chemical composition data to differentiate dust impacts from the OHV park west of the Salton Sea vs. dust from exposed areas along the western shoreline, due to high gypsum levels in both locations. Other methods for dust source apportionment were discussed, such as a microbial method, a long chain hydrocarbon method, and XRF elemental analysis.

With regard to anticipated PM deposition characteristics, the highest concentrations of coarse fraction PM from exposed playa should occur at edges of the Salton Sea. If we can

document compliance at the Salton Sea shoreline, impacts downwind should not be from exposed playa, but rather from other sources. If we see PM2.5 impacts at the shoreline, we will have to shift our study to look offsite to determine the sources.

Phil Fine commented that the existing network is very dense to the NW and SE of the Salton Sea. We could expand PM2.5 monitoring without too much expense.

Chuck Keene summarized the presentation and indicated that we'd like to move ahead to finalize the design and plan for a Baseline Air Quality Monitoring Network at the Salton Sea. He requested review and comments from the group by January 15, 2008, and asked that comments be sent to Earl Withycombe, Pamela Vanderbilt (CH2M HILL), and him.

Doug Barnum, USGS Salton Sea Science Office, asked the group to forward recommendations for air quality experts to serve on the Scientific Review Panel, which will review this document and other monitoring plans prior to implementation.

Phil Fine asked how much money there was to spend. Knowing how much money was available would inform the group's review of the network plan. This way we could define what was the minimum, "bare bones" program needed, and additional options could be identified for implementation if more funding was available.

Chuck Keene responded that we'd like to collect the best data we can at this time. We need to do baseline air quality and meteorological monitoring, and we can identify elective studies, as well. The plan will not be set in stone, but rather will be designed to be flexible. If stations need to be moved or additional stations added, those changes can be identified and accommodated later. For now, we need to move ahead, get our plan together, and use the financial resources available this year.

Chuck requested the group's comments on the draft design for a Baseline Air Quality Monitoring Network at the Salton Sea (copies of the document were emailed to the group). In addition, Chuck asked for group input on the priorities for focused air quality studies, beyond the baseline monitoring program. Chuck indicated that the DWR Salton Sea web site is up again, at www.saltonsea.water.ca.gov. Handouts, minutes, and agendas for the working group meetings will be posted at this site, along with documents and proposals for group review and comment.

Sylvia Oey noted that they had been informed that the site currently used for the monitoring station in Westmorland is no longer available, so another site is needed in that area.

James King, Desert Research Institute (DRI), provided a Power Point presentation to describe their work to date with the PISWERL, and to describe the proposals they have for additional work on playa and shoreline areas at the Salton Sea. The PISWERL is used to measure PM10 emissions in situ on the surface of the ground. The instrument is operated at varied "wind speeds", and has been calibrated to the 10m wind tunnel. James provided a map of locations studied in the previous DRI programs. Sites focused on newly exposed area, including those forming salt crusts. Sylvia Oey pointed out the need for relatively

continuous data as change occurs, as areas are exposed and re-submerged, versus areas that are exposed longer term.

The DRI proposals for additional research were discussed, and include:

1. One DRI proposal is basically a continuation of the PI-SWERL work that DRI has been doing to study playa conditions and chemical makeup at the Salton Sea at a number of sites during various seasons. For example, DRI would revisit sites sampled in 2007 and in February 2008. The goal would be to obtain at least 2 years of seasonal information at a consistent set of sites, and could include testing at additional exposed areas. Chuck requested the group's input on appropriate sampling locations, timing, and the recommended duration for the study.
2. Another DRI proposal would provide for a more detailed salt chemistry study, to monitor salt makeup and conditions as salt crusts form and age, or are intermittently wetted. The influence of area groundwater and river inflows on salt composition could be studied. This work might be combined with the first proposal.
3. Another DRI proposal would evaluate methods for fingerprinting the dust that might be collected by sampling and monitoring in the area, to try to evaluate variations in dust (and salt) composition with varying dust sources.

John Scott, Metropolitan Water District of Southern California (MWD), asked questions about the method used for choosing the DRI sampling sites, and recommended a more random selection process, at varying elevations. A goal would be evaluation of what portion of the sampled sites are emissive (rather than to focus on potentially emissive sites), as well as tracking of sediments, soils, and salts as the water comes and goes. It will be important to identify the varying types of soils, sediments, and salts around the area, and document what happens to these soils, sediments, and salts at various sea level elevations.

Al Kalin, Imperial County Farm Bureau (ICFB), noted that the identification of subsurface soils may not be as important if clays and silts are deposited on top of the soil as the water recedes.

Duane Ono pointed out that at Owens Lake the surface is so dynamic, and they have found that they need to know where emissions are actually happing. So they have placed particulate samplers at many different locations, all over the lake bed.

The group discussed use of the PISWERL data in the playa emissions estimation model. Carrie MacDougall, CH2M HILL, explained how the information from PISWERL, ambient and meteorological monitoring, and various forms of visual observations would be used to calibrate the model, knowing that the system is dynamic. For example, the Salton Sea may have lower levels of sand, so sand movement may not be as much of a dust indicator. Some of the crusts that have formed at Salton Sea are so fragile, and soils are high in clay and silt, that dust is from direct entrainment, not sand motion. Sand catchers may not catch much early in the recession of the Salton Sea, but this might change over time.

Pat Chavez spoke regarding the use of satellite imagery to track changes in exposed Salton Sea shoreline areas. The Scripps Institute has plans for additional bathymetry work, and he recommends use of high resolution satellite imagery to monitor changes along shorelines.

He had example photographs from Quick Bird Satellites. He suggested mapping of the deltas and the changes over time. He indicated that the files were 4-band multi-spectral files, at 2.5 meter resolution, and they were also available in color infrared.

Carla Scheidlinger, Agrarian Research, indicated her support for Pat's ideas, and noted that there have been incredible changes in water level over time near the delta of the Alamo River. Hundreds of acres are exposed from time to time. This would be a fairly inexpensive way to track changes over time.

John Scott pointed out that annual Salton Sea water levels are highest in May, and lowest in December, so seeing larger exposed areas this time of year is to be expected.

Chuck suggested that we might use the satellite imagery to show exposed areas for siting the PISWERL testing. This fits well with the work being done by DRI.

Use of satellite imagery to evaluate soil moisture content (wet areas) at Owens Lake was discussed. An airborne radial spectral data system might be needed, which might add a lot of cost and complexity to the monitoring. The broader implications of our choices should be kept in mind as we select technologies and approaches.

Lee Case, USGS, indicated plans are underway to collect 6" aerial photography data and that perhaps this may present a collaborative funding opportunity.

Ted Schade said that he felt that remote sensing was the best thing we could spend money on. He suggested we get a number of sources of this kind of data, using other platforms, and other satellites. The technology is changing quickly. He cautioned that you need to task Quick Bird and other satellites ahead of time, because you cannot go back in time if images were not recorded. He suggested we might want to form a remote sensing group to keep informed regarding the rapidly advancing technology.

Representatives of the Air Districts, ARB, EPA, and the Tribe were asked for their input.

Larry Biland, EPA, asked if there were plans to prepare a baseline emission inventory for the Salton Sea area, and when that might be completed. The existing draft inventories prepared by SCAQMD and ICAPCD, and the ARB inventory, were described and the air districts agreed to look into a baseline emission inventory for the area.

Brad Poiriez described a few of ICAPCD's comments and questions:
1. Concerns regarding their earlier comments on the profiler
2. Recommendations for additional NOx monitoring at locations with ozone monitors
3. Designation of special project sites for air quality management - how will this be done?
4. What is DWR's time line for air quality monitoring?

To respond to the question about time line, Chuck Keene indicated the following scheduling goals:
1. January 2008 - draft design for a Baseline Air Quality Monitoring Network at the Salton Sea approved by group and finalized

2. Completed Baseline Air Quality Monitoring Plan by early spring
3. Procure equipment and install and operate it by this summer

Phil Fine indicated his preliminary support for the draft network plan and almost all of the specific projects, but urged us to build in flexibility. He indicated that he looked forward to seeing the SOWs and/or work plans for special (focused) projects. He suggested the need to coordinate these studies and share data, recommending frequent meetings for researchers to share data, lessons learned, etc. We need to consider both the money for the initial capital expenses associated with the equipment, and the long-term funding needed for long-term management and maintenance. His estimate was between $80,000 and $100,000 to set up a station, and approximately $100,000 per year, per station, for operation.

Various funding sources were discussed, including Proposition 84, federal Water Resources Development Act (WRDA) funding (which is dependent on Congressional appropriation), SB 187, and the $133 million in mitigation funding that is overseen by the Quantification Settlement Agreement (QSA) Joint Powers Authority, of which DFG is a member.

Local electrical sources and resources to provide power to the monitoring stations were discussed, including geothermal, solar, and IID facilities and infrastructure. Eventually, the electrical network may be quite extensive, for example, to operate pumps and infrastructure for the rest of restoration project.

Chuck explained the plans for the Salton Sea Data Management Working Group. DFG will implement data management for all baseline monitoring efforts and other focused studies at the Salton Sea. The ARB has agreed to manage all the data from the standard types of air quality monitoring, but we will need DFG to provide links to the ARB and local air district databases, and to provide storage of information and data from focused studies at the Salton Sea. Questions include how the data will be maintained, how it will be communicated, and to whom it will be available.

ARB's data sets currently include two types of data:
1. Archived data set – includes data collected to support compliance with EPA standards and regulations (typically 1-hour average measurements)
2. Real time data which has not undergone quality control evaluation and is stored for 2 years.

In addition, ARB is mapping real time data in a program that is being beta tested. ARB has difficulty storing and facilitating access to shorter term air quality monitoring data. They can provide stored files on a batch basis. DFG is very interested in collecting the META data, and has provided a form they'd like included with any data sets that are forwarded to them for management. It would potentially be possible to include the data from CIMIS sites.

Carla Scheidlinger asked if it was premature to propose pilot studies for control measures. The group discussed the need to develop and review the list of all the potential air quality studies that need to be done to answer questions identified, and perhaps some that still need to be identified. The next step would be for the group to list priorities, requirements, and

schedules for the next steps with regard to focused studies. The studies should include use of deposition plates, speciation of dust composition, and others in the list provided by Keith McGregor. Doug Barnum commented that USGS may have some deposition plate data already. Sylvia Oey indicated she would like to follow up on this data if it was readily available. Another comment was that we need to have some of the people studying this physically located at the Salton Sea. We need people there when things like dust storms happen.

Doug Barnum and Chuck Keene explained that proposals for focused studies, in all media, will include scientific peer reviews and adherence to a science program. We need people that have proven they know the Salton Sea, and can really do the work. There will be peer review at both ends of the studies, both the proposal and the results will undergo review, and will be made available to the scientific community at large.

Pamela Vanderbilt, CH2M HILL, asked Ted Schade for the source of the hydrogen sulfide (H_2S) emission factor on page 3.1-20 in the 2008 Owens Valley PM10 Planning Area Demonstration of Attainment State Implementation Plan, Draft Subsequent Environmental Impact Report. Ted said he thought the consultant had used an emission factor from the US Borax EIR.

The information needed to support development of a PM10 emission inventory for the Salton Sea Air Basin was discussed. ARB keeps a statewide inventory which can be queried for inventory information by air basin, but the local districts also develop inventories as part of the SIP process. SCAQMD has inventory information supporting their 2003 PM10 SIP for the Coachella Valley, and ICAPCD published a Final Report titled, *Development of a Wind Blown Fugitive Dust Model and Inventory for Imperial County, California* in May 2004. The ARB provided comments on the documents and some of the differences in the two inventories were described in the PEIR. CH2M HILL will talk to ICAPCD about potential approaches for establishing a baseline PM10 emission inventory for the Salton Sea Air Basin.

Pamela asked Larry Biland for names of people at EPA that might be interested in reviewing the Baseline Air Quality Monitoring Plan when it becomes available. He suggested Doug Solomon, Bob Pallorino, and Kathryn Brown.

Doug Barnum spoke on the need to develop a book of protocols and standard operating procedures (SOPs) for documenting the path forward. Duane Ono described how they developed a program manual or field manual in 1999 that has provided the protocols, and "how to" for the Owens Lake dust source identification program. The manual is included as Chapter 8 in the 2008 Owens Valley SIP. It is a dynamic document, and undergoes frequent review and negotiations with the City of Los Angeles.

Chuck asked the group for any comments on the minutes from last meeting. Pat Chavez had sent some clarifying information on the dust source he had described, an off road vehicle park to the west of the Salton Sea.

The working group discussed future meetings, and proposed that our next meeting occur in Southern California in February. Options include Ontario (DFG office), Diamond Bar

(SCAQMD office), and Palm Desert (UC Riverside campus). We also need to meet with Christina White, DFG, to further discuss data base management for air quality monitoring programs. Potential topics for the next meeting were listed and included:

1. Data Management
    a. Management of data for regulatory purposes (ARB)
    b. Sub hourly data – episodes
        How collected?
        Where housed?
        How used?
2. Proposals for research studies
        DRI, USGS, Pat Chavez remote sensing, others
3. AQ Monitoring Plan – Update
        Next steps
        Logistics, power, locations
4. CH2M HILL - 1st steps – Emission Inventory
        Data gaps
        Approaches
5. Update on SB 187. If the Legislature approves the Preferred Alternative proposed by Secretary Chrisman, we can move ahead on other aspects of the five-year plan. The five-year plan includes activities that can be conducted in the pre-construction phase, such as:
    - Monitoring
    - Pilot- and demonstration-scale projects
    - Design
    - Preliminary and project level environmental documents
    - Fault mapping, bathymetry, and other collaborative studies
    - Biological, geotechnical, air quality, and other investigations

6. Prioritizing focused studies
    Chuck requested comments and thoughts on priorities regarding the list of potential studies provided by Keith McGregor
7. Problem statements emerging from other media as part of the overall science program – how it all fits together